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EXAMINER

ROSSI, JESSICA

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 10/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/880,365

Applicant(s)

HANNA, MARK B.

Examiner

Jessica L. Rossi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/22/03, Amendment A.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 15-24 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-14 is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-14, in Paper No. 5 is acknowledged. The traversal is on the ground(s) that apparatus claims 15-24 are really product claims and therefore the restriction is improper. Applicants also argue that searching Groups I and II together would not place serious burden on the examiner.

This is not found persuasive because the so-called "product" claims, which are labeled as apparatus claims, could be restricted from the process claims 1-14 based on the same reasoning set forth in the previous office action (see paragraph 2). While the examiner acknowledges that a process/product form paragraph should have been used instead of a process/apparatus form paragraph, Applicants can surely understand that this was an inadvertent error made due to the presence of the word "apparatus" in the preamble of the product claims. Therefore, the product as claimed could be made by another and materially different process such as one where only the annular sealing section is heated by concentrated energy and the window and frame are not heated (see US 5293511 of record; column 9, lines 20-23), thereby placing serious burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Response to Amendment

2. This action is in response to the amendment dated 9/22/03. Claims 1-24 are pending. Claims 15-24 are withdrawn from further consideration.

3. The rejection of claims 1-2 and 11 under 35 U.S.C. 102(b) as being anticipated by Seelen (US '774; of record), as set forth in paragraph 6 of the previous office action, has been

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withdrawn because of the added limitation wherein the window has a chrome layer with an aperture therethrough.

4. The rejection of claims 1 and 11 under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (US '496; of record), as set forth in paragraph 10 of the previous office action, has been withdrawn for the reason stated above.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita (JP 61-36969; of record; w/ written translation) in view of the collective teachings of Hall (US 4135789; of record) and Hasegawa et al. (US 2001/0035496; of record), and Matsumoto (US 5081347).

With respect to claim 1, Yamashita is directed to making a photoelectric converting device. The reference teaches providing a glass window 6 that is transmissive to light and faces a semiconductor substrate 2 having a color filter 4 thereon, providing a metal frame 15 that has an opening through it, providing an annular sealing section 7 between and in contact with the window and frame such that the sealing section extends completely around the opening wherein the sealing section is a lower melting point glass (Figure 1; p. 3, 4th paragraph of translation). The reference is silent as to heating (the window, frame, and sealing section), the sealing section having a lower melting temperature than that of the window and frame, cooling (the window, frame, and sealing section), and the window having a chrome layer with an aperture therethrough.

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It is known in the art to hermetically seal two components using a low melting point sealing glass where the sealing glass has a lower melting temperature than glass, ceramic, and metal components, as taught by Hall (column 2, lines 52-59) and Hasegawa (p. 4-5, [0035]); therefore, the skilled artisan would have appreciated that the low melting point sealing glass of Yamashita would have a lower melting point than that of the glass window and metal frame of Yamashita to thereby prevent damage to the same during sealing.

One reading the reference as a whole would have also appreciated that the reason for using a sealing section having a lower melting point than the window and frame is so that these components are not damaged during heating thereof; therefore, it would flow that the window, frame, and sealing section are heated to melt the sealing section. Furthermore, the skilled artisan would have appreciated that cooling of the window, frame, and sealing section would take place upon termination of the heating step. However, if it is not taken that such cooling does take place, it would have been obvious to the skilled artisan to facilitate cooling of the window, frame, and sealing section because this would expedite the process and only the expected results of solidifying the sealing section to form a hermetic seal between the window and frame would have been achieved.

It is known in the photoelectric converting device art to apply a chrome layer 16 to the periphery of the inside surface of a light-transmissive, glass window 5 that sits in a frame 6 and faces a semiconductor substrate 9 having a color filter thereon in order to prevent reflection, as taught by Matsumoto (Figure 6; column 5, lines 18-45; column 2, lines 30-31; column 3, lines 11-13). It would have been obvious to the skilled artisan at the time the invention was made to apply a chrome layer to the periphery of the inside surface of the window of the Yamashita

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because such is known in the art, as taught by Matsumoto, and this would prevent reflection.

Regarding claim 11, Yamashita teaches the sealing section being a low melting point sealing glass (abstract).

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita, the collective teachings of Hall and Hasegawa et al., and Matsumoto, as applied to claim 1 above, and further in view of Robichaud et al. (US 6261867; of record).

Regarding claim 2, Yamashita teaches the frame being metal (p. 3, last paragraph). Yamashita is silent as to oxidizing the frame. It would have been obvious to oxidize the frame of Yamashita prior to sealing because such is known in the art, as taught by Robichaud (column 4, line 66; column 5, lines 2-5), where this enhances the bonding properties of the metal.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita, the collective teachings of Hall and Hasegawa et al., Matsumoto, and Robichaud, as applied to claim 2 above, and further in view of Applicant's information disclosure statement, paper no. 2, filed 6/13/01.

Regarding claim 3, selection of a particular metal for the frame would have been within purview of the skilled artisan at the time the invention was made. However, it would have been obvious to use ASTM F15 steel because such is known in the art, as disclosed by Applicants.

9. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita, the collective teachings of Hall and Hasegawa et al., Matsumoto, and Robichaud, as applied to claim 2 above, and further in view of Seelen (US 2708774; of record).

Regarding claims 4 and 6, Robichaud teaches oxidizing in a nitrogen environment within a furnace (column 5, lines 2-5) but is silent as to a wet nitrogen or hydrogen furnace. Seelen

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teaches oxidizing a metal frame in a wet nitrogen and hydrogen environment (column 3, lines 68-72) before bonding the frame to a glass window by means of a sealing section but is silent as to heating in a furnace. It would have been obvious to one of ordinary skill in the art at the time the invention was made perform the oxidation process in a wet nitrogen or hydrogen environment because such is known in the art, as taught by Seleen, where such facilitates oxidation.

Regarding claims 5 and 7, selection of heating temperatures and times would have been within purview of the skilled artisan depending on the materials used.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita, the collective teachings of Hall and Hasegawa et al., and Matsumoto, as applied to claim 1 above, and further in view of Matsuda et al. (US 4812420; of record).

Regarding claim 8, Yamashita teaches the window being glass, but are silent as to the glass being borosilicate. Selection of a particular glass would have been within purview of the skilled artisan. However, it would have been obvious to use borosilicate glass because such is known in the art, as taught by Matsuda (column 5, lines 39-41).

11. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita, the collective teachings of Hall and Hasegawa et al., and Matsumoto, as applied to claim 1 above, and further in view of Poradish et al. (US 5293511; of record).

Regarding claim 9, Yamashita is silent as to the window having an anti-reflection coating. It would have been obvious to provide the window of with an anti-reflection coating on the side of the window facing the frame because such is known in the art, as taught by Poradish (Figure 1; column 6, lines 35-44), where such improves the optical qualities of the window.

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Regarding claim 10, selection of a particular type of anti-reflective coating would have been within purview of the skilled artisan at the time the invention was made.

12. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art referred to by Chun (US 5352852; of record) in view of Matsumoto.

With respect to claim 1, the prior art referred to by Chun is directed to making a photoelectric converting device. The prior art teaches providing a glass window 7 that is transmissive to light having a predetermined wavelength and faces a semiconductor substrate 1, providing a ceramic frame 4 (portion mounted on substrate above lead fingers 5) that has an opening through it, and providing an annular sealing section 8 between and in contact with the window and frame such that the sealing section extends completely around the opening wherein the sealing section has a melting point below that of the window and frame (Figure 1; column 1, lines 48-54). The reference is silent as to heating (the window, frame, and sealing section), cooling (the window, frame, and sealing section), and the window having a chrome layer with an aperture therethrough.

One reading the reference as a whole would have appreciated that the reason for using a sealing section having a lower melting point than the window and frame is so that these components are not damaged during heating thereof; therefore, it would flow that the window, frame, and sealing section are heated to melt the sealing section. Furthermore, the skilled artisan would have appreciated that cooling of the window, frame, and sealing section would take place upon termination of the heating step. However, if it is not taken that such cooling does take place, it would have been obvious to the skilled artisan to facilitate cooling of the window, frame, and sealing section because this would expedite the process and only the expected results

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of solidifying the sealing section to form a hermetic seal between the window and frame would have been achieved.

It is known in the photoelectric converting device art to apply a chrome layer 16 to the periphery of the inside surface of a light-transmissive, glass window 5 that sits in a frame 6 and faces a semiconductor substrate 9 in order to prevent reflection, as taught by Matsumoto (Figure 6; column 5, lines 33-45). It would have been obvious to the skilled artisan at the time the invention was made to apply a chrome layer to the periphery of the inside surface of the window of the prior art referred to by Chun because such is known in the art, as taught by Matsumoto, and this would prevent reflection.

13. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art referred to by Chun in view of Tu et al. (US 6559539; of record) and Matsumoto, or alternatively, Tu et al. in view of the prior art referred to by Chun and Matsumoto.

With respect to claim 1, Applicants are directed to paragraph 12 above for a complete discussion of the prior art referred to by Chun and Matsumoto. It is noted that the examiner interpreted the prior art to mean that the frame 4 was not integral with the substrate below the lead fingers 5. If it is not taken that this is so, the skilled artisan would have appreciated that it is known in the art to form sensor packages by bonding a glass cover 32, which faces a semiconductor substrate 26, to a frame 30, which is mounted to a substrate 10, as taught by Tu (Figure 1; column 2, line 43; column 3, lines 8-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to mount the portion of the assembly above the lead fingers 5 to the substrate below the fingers because such is known in the art, as taught by Tu, where this would allow for the assembly to be comprised of different materials.

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Alternatively, it would have been obvious to bond the glass cover and frame of Tu using the sealing section of the prior art referred to by Chun, which has a melting temperature below that of the window and frame, because this would prevent damage to the window and frame upon heating to form a hermetic seal between the same. It would also have been obvious to apply a chrome layer to the periphery of the inside surface of the window of Tu because such is known in the art, as taught by Matsumoto, and this would prevent reflection.

14. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tu et al., the prior art referred to by Chun, and Matsumoto, as applied to claim 1 above, and further in view of Yamashita and Robichaud et al.

Regarding claim 2, Tu is silent as to the frame 30 being metal. It would have been obvious to use a metal frame because such is known in the art, as taught by Yamashita (p. 3, 4th paragraph), where such a material provides strength to the finished product.

Tu is also silent as to oxidizing the frame. It would have been obvious to oxidize the frame of Tu prior to sealing because such is known in the art, as taught by Robichaud (column 4, line 66; column 5, lines 2-5), where this enhances the bonding properties of the metal.

Regarding claim 2, Matsumoto is silent as to the frame being metal. It would have been obvious to the skilled artisan at the time the invention was made to use metal because such is known in the art, as taught by Yamashita, wherein such a material would provide strength to the device.

15. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tu et al., the prior art referred to by Chun, Matsumoto, Yamashita, and Robichaud et al., as applied to claim 2

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above, and further in view of Applicant's information disclosure statement, paper no. 2, filed 6/13/01.

Regarding claim 3, selection of a particular metal for the frame would have been within purview of the skilled artisan at the time the invention was made. However, it would have been obvious to use ASTM F15 steel because such is known in the art, as disclosed by Applicants.

16. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tu et al., the prior art referred to by Chun, Matsumoto, Yamashita, and Robichaud et al., or the alternative, as applied to claim 2 above, and further in view of Seelen.

Regarding claims 4 and 6, Robichaud teaches oxidizing in a nitrogen environment within a furnace (column 5, lines 2-5) but is silent as to a wet nitrogen or hydrogen furnace. Seelen teaches oxidizing a metal frame in a wet nitrogen and hydrogen environment (column 3, lines 68-72) before bonding the frame to a glass window by means of a sealing section but is silent as to heating in a furnace. It would have been obvious to one of ordinary skill in the art at the time the invention was made perform the oxidation process in a wet nitrogen or hydrogen environment because such is known in the art, as taught by Seelen, where such facilitates oxidation.

Regarding claims 5 and 7, selection of heating temperatures and times would have been within purview of the skilled artisan depending on the materials used.

17. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art referred to by Chun, Tu et al., and Matsumoto, or alternatively, Tu et al., the prior art referred to by Chun, and Matsumoto, as applied to claim 1 above, and further in view of Matsuda et al.

Regarding claim 8, the prior art referred to by Chun (column 1, lines 49-50) and Tu

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(column 3, lines 11-12) teach the window being glass, but is silent as to the glass being borosilicate. Selection of a particular glass would have been within purview of the skilled artisan. However, it would have been obvious to use borosilicate glass because such is known in the art, as taught by Matsuda (column 5, lines 39-41).

18. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art referred to by Chun, Tu et al., and Matsumoto, or alternatively, Tu et al., the prior art referred to by Chun, and Matsumoto, as applied to claim 1 above, and further in view of Poradish et al.

Regarding claim 9, the prior art referred to by Chun and Tu are silent as to the window having an anti-reflection coating. It would have been obvious to provide the windows of the prior art referred to by Chun and Tu with an anti-reflection coating on the side of the window facing the frame because such is known in the art, as taught by Poradish (Figure 1; column 6, lines 35-44), where such improves the optical qualities of the window.

Regarding claim 10, selection of a particular type of anti-reflective coating would have been within purview of the skilled artisan at the time the invention was made.

19. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art referred to by Chun, Tu et al., and Matsumoto, or alternatively, Tu et al., the prior art referred to by Chun, and Matsumoto, as applied to claim 1 above, and further in view of the collective teachings of Hall and Hasegawa et al.

Regarding claim 11, the prior art referred to by Chun is silent as to the type of material used for the sealing section, which has a lower melting point than the window and frame. Selection of a type would have been within purview of the skilled artisan at the time the invention was made. However, it would have been obvious to use a low melting point sealing

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glass because such is known in the art, as taught by Hall (column 2, lines 52-59) and Hasegawa (p. 4-5, [0035]), and this material has a lower melting point than ceramic, glass and metal.

Allowable Subject Matter

20. Claims 12-14 are allowed.

Claims 12-14 are allowed for the reasons set forth in paragraph 32 of the previous office action, paper no. 6. However, after receiving a written translation of DE 19502006 (cited in IDS), the examiner would like to also distinguish this reference from present claim 12.

DE '006 to Leonhardt teaches bonding glass window 10 to frame 7 using a sealing section comprising conductive adhesive 15, a tin solder 16, and a soft tin solder 17 (p. 4, 4th paragraph – p. 5, 1st paragraph of translation). The reference fails to teach or suggest the sealing section comprising first and second glass materials that are different and melt at a temperature below that of the window and frame.

Response to Arguments

21. Applicant's arguments filed 9/22/03 have been fully considered but they are not persuasive.

22. Applicant argues on pages 10-17 that Yamashita, the prior art referred to by Chun, and Tu et al. all fail to teach or suggest the window having a chrome layer having an aperture therethrough.

The examiner directs Applicant to the paragraphs above where Matsumoto was used to provide motivation for placing a chrome layer having an aperture therethrough on the windows of Yamashita, the prior art of Chun, and Tu.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jessica L. Rossi** whose telephone number is **703-305-5419** (571-272-1223 come mid December). The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard D. Crispino can be reached on 703-308-3853. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jessica L. Rossi
Patent Examiner
Art Unit 1733



jlR



JEFF H. AFTERGUT
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